TABLE 4-21
Common Highway Runoff Pollutants and Their Primary Sources

Pollutants	Primary Source(s)
Particulates	Pavement wear, vehicles, atmosphere, maintenance of roadway
Nitrogen, phosphorous	Atmosphere, roadside fertilizer application
Lead	Tire wear, lubricating oil and grease, bearing wear
Zinc	Tire wear, motor oil, grease
Iron	Auto body rust, steel highway structures (for example, guard rails), moving engine parts
Copper	Metal plating, bearing wear, moving engine parts, brake lining wear, fungicides and insecticides applied by maintenance operations
Cadmium	Tire wear, insecticide application
Chromium	Metal plating, moving engine parts, brake lining wear
Nickel	Diesel fuel and gasoline (exhaust), lubricating oil, metal plating, brake lining wear, asphalt paving
Manganese	Moving engine parts
Cyanide	Anticake compound used to keep deicing salt granular
Sodium, calcium	Deicing salts, grease
Chloride	Deicing salts
Sulfate	Roadway beds, fuel

Source: Dupuis, T. V., et al. *Practitioner's Handbook: Assessment of Impacts of Bridge Runoff Contaminants in Receiving Waters*. Prepared for National Cooperative Highway Research Program. July 2001.

During normal roadway operation, these pollutants could be washed from the roadway surface by stormwater runoff to the river. The effects of these pollutants would be greatest at locations that directly discharge to waterways. The concentrations and accumulations of pollutants would generally be of low volume and at most would only have a localized impact.

The new bridge would approximately double the area of impervious surface of the existing bridge across the Mississippi River. The increased surface area would result from the addition of one lane in either direction. The doubling of surface area would approximately double the amount of deicing material (e.g., sodium, calcium, and chloride) applied to the bridge deck during winter storm events. Dupuis (1985c) reports that roadway runoff pollutants on roads with an ADT less than 30,000 generally have negligible damaging effects on receiving water bodies. Given that the projected ADT on the I-74 bridge is 78,000, roadway runoff pollutants can have potential damaging effects on receiving water bodies. The potential deleterious effects of such pollutants are offset by immediate mixing with large volumes of flowing water such as the Mississippi River beneath the I-74 bridge.

Bridge deck runoff from the existing I-74 bridge is discharged directly to the Mississippi River via downspout conduits. Water quality sampling below similar bridges on large rivers has shown that bridge deck runoff pollutants, as described in Table 4-21, *Common Highway Runoff Pollutants and Their Primary Sources*, are nearly undetectable several meters

downstream from the point of stormwater input, given the large degree of dilution. Stormwater conduits will likely be incorporated in the proposed I-74 bridge alternatives.

Normal maintenance procedures include the seasonal use of roadway deicing agents (normally a formulation of sodium or calcium chloride). Deicing salts can affect water quality by increasing the chloride levels during runoff and snowmelt. Impacts are associated with salt movement away from the proposed roadway. Salt flows into drainage ditches and travels to waterways. Salt spray from moving traffic drifts as a mist and deposits on nearby vegetation and soils. Deicing salts are used as needed during the winter months. Past application rates have varied widely, primarily due to weather conditions and deicing material. Future application should vary similarly.

The proposed build alternatives would increase the number of lane miles in the project area, thereby increasing the total salt loading over current levels. This could result in an increase in the delivery of sodium chloride ions to receiving surface water. Research shows that occasional high levels of chloride do occur in drainage ditches and waterways due to rapid runoff and snowmelt. The research also indicates, however, no long-term buildup of chlorides occurs in waterways due to regular salt applications in the winter months. Studies by the USGS (Research Project R-18-0) of sodium chloride concentrations originating from highway runoff have shown that the additional input of sodium chloride ions from deicing salts would be offset by a proportional increase in runoff for dilution.

4.5.3 Indirect and Cumulative Impacts

With appropriate BMPs (e.g., erosion control, stormwater management, cofferdams, and appropriate silt filtration [silt curtains and/or gunderbooms]) implemented and monitored, water quality impacts to surface waters resulting from proposed improvements to I-74 are estimated to be negligible, including indirect and cumulative impacts.

None of the proposed build alternatives would contribute substantially to indirect or cumulative impacts to receiving surface water bodies such as the Mississippi River. Any minor indirect or cumulative impacts to water quality are estimated to be approximately equal among all proposed build alternatives.

In contrast to the history along this stretch of the Mississippi River, current and proposed development is generally of a nature (casinos, office buildings, convention centers) that do not contribute untreated contaminated stormwater or wastewater to the Mississippi River directly. As current stormwater and wastewater controls are generally stricter than in the past, and as the proposed I-74 improvements will not introduce a new conduit or source of contamination, the proposed improvements would not cause indirect impacts or contribute to cumulative impacts.

4.6 Wetland Impacts

Key state and federal wetland regulations that have been enacted to protect wetland resources include:

- Section 404 of the CWA requires that a permit be obtained before filling can occur in portions of wetlands important for interstate commerce. Section 404 also requires that unavoidable wetland impacts be minimized and mitigated.
- Presidential Executive Order 11990 on Protection of Wetlands requires federal agencies to avoid, to the extent practicable, long- and short-term adverse impacts associated with the destruction or modification of wetlands. More specifically, the Order directs federal agencies to avoid construction in wetlands unless there is no reasonable alternative, and states that where wetlands cannot be avoided, the proposed action must include all practicable measures to minimize harm to the wetlands.
- The Illinois Interagency Wetlands Policy Act of 1989 (IWPA) mandates no statewide net loss of wetland acres or functional values that would result from state agency actions. The IWPA requires that agencies develop agency action plans and wetland mitigation policies.

In accordance with Executive Order 11990, the IWPA, and various state and federal agency policies and mandates for wetland preservation, the following discussion provides a summary of wetland impacts for the proposed alternatives.

Based on Illinois DOT policy, if part of the wetland is within the proposed right-of-way, the entire wetland is considered impacted. Wetland impacts per road section (e.g., South Section, Central Section, North Section, and local road improvements) are discussed below.

No-Action Alternative

No wetlands would be impacted by the No-Action Alternative.

South Section

No wetlands would be impacted by the proposed improvements to I-74 within the South Section.

Central Section—Mainline/Interchange Improvements

Wetlands 5 and 6 are located within the Mississippi River. Alignments E and F pass directly over Wetland 6. Only Alignment E passes directly over Wetland 5. Alignment E would impact a total of 2.1 acres of wetlands within the Central Section, while Alignment F would impact a total of 0.17 acres of wetlands within the Central Section. Wetland impacts associated with mainline/interchange interchange improvements are summarized in Table 4-22, *Wetland Impacts Per Mainline/Interchange Improvement*.

TABLE 4-22
Wetland Impacts Per Mainline/Interchange Improvement

	Moline		Bridge (acres)	Bettendorf	
	M1 (acres)	M2 (acres)		B1 (acres)	B2 (acres)
Alignment E	0.0	0.0	2.1	0.0	0.0
Alignment F	0.0	0.0	0.17	0.0	0.0

Central Section—Local Roadway Improvements

Local roadway improvements would not impact any wetlands.

North Section

A wetland associated with Duck Creek (Wetland 7; see Appendix B, *Aerial Photo Exhibits*) would be impacted by proposed road improvements in the North Section. Wetland #7 is predominantly an emergent wetland with a small component of forested wetland. All proposed alignments (E and F) would impact 0.92 acres of Wetland 7.

Table 4-23, *Wetland Impacts by Proposed Alignment*, summarizes total wetland impacts for all road sections per alignment (E and F), (e.g., North Section, Central Section, South Section, and local roadway improvements). Wetland impact locations are depicted in Appendix B, *Aerial Photo Exhibits*. Wetlands delineated in the project area but not impacted by any proposed alternative are not included in Table 4-23.

TABLE 4-23
Wetland Impacts by Proposed Alignment

Wetland	Alignment E Impacts (acre)	Alignment F Impacts (acre)
Wetland 5 (Illinois – Mississippi R.)	1.71	0.00
Wetland 6 (Illinois – Mississippi R.)	0.39	0.17
Wetland 7 (Iowa – Duck Creek)	0.92	0.92
Total Wetland Impacts	**3.02**	**1.09**

4.6.1 Indirect and Cumulative Impacts

Indirect wetland impacts, in general, can be those impacts that occur adjacent to a direct wetland impact as a result of sedimentation or loss of suitable habitat characteristics. Indirect wetland impacts can also occur if characteristics of a given roadway improvement would likely result in development patterns that would require future wetland fills. Indirect impacts to wetlands as a result of the I-74 improvements are estimated to be negligible for the following reasons:

- Indirect water quality impacts, e.g., sedimentation, can be minimized by implementing and monitoring BMPs such as silt fencing and rapid re-vegetation of embankments.
- The urbanized landscape has already created an "edge effect" on wetlands in the corridor study area, though important wildlife migration corridors (e.g., riparian areas along Duck Creek and the Mississippi River) would still function as such with the proposed roadway improvements.
- The proposed improvements to I-74 do not systematically direct future development toward the necessity of wetland fill. Outside of the Mississippi River floodplain, wetlands are not common in the study area.

4.6.2 Wetland Mitigation

To the extent practicable, wetlands were avoided as part of alternatives development for the I-74 project. However, complete avoidance of these resources was impossible. Unavoidable impacts would be minimized with road design considerations such as:

- Increasing road embankment slopes to minimize the size of the roadway footprint in fill areas.
- Increasing the slope of cut areas with stepped retaining walls to reduce the extent of earthmoving in sensitive areas.
- Incorporating BMPs such as erosion control with properly installed and maintained silt fences and rapid re-vegetation with native plant species.

Mitigation measures are actions taken to compensate for unavoidable wetland impacts. The following steps would be taken to compensate for resources or entities that would be adversely affected by the project.

Compensation of unavoidable wetland impacts through restoration or creation would be undertaken to offset projected losses based on current Illinois and Iowa DOT policy. Relevant wetland mitigation policy for the Illinois and Iowa DOTs are summarized as follows:

- The Iowa Code 314.23 and *The Policy and Procedures Manual* (PPM) 500.03, and guidance from resource agencies provide relevant guidance on wetland mitigation and appropriate mitigation ratios for wetland impacts occurring in Iowa. Specific relevant mitigation guidance as prescribed in Iowa is as follows:
  - Impacts to emergent wetlands mitigated in-kind and offsite generally use a mitigation ratio of 1.5 acres (mitigated) to 1 acre (impacted). If impacts to emergent wetlands are mitigated in-kind and onsite, then the mitigation ratio is often reduced to 1:1.
  - Impacts to forested wetland mitigated out-of-kind and offsite generally use a mitigation ratio of 3 acres (mitigated) to 1 acre (impacted). If impacts to forested wetlands are mitigated offsite and in-kind, then the mitigation ratio is often reduced to 1.5:1.
- The Illinois DOT *Wetlands Action Plan* provides relevant guidance on wetland mitigation for wetland impacts occurring in Illinois. The project constitutes a Standard Review Action, which requires the preparation of a Wetlands Compensation Plan and its approval by the Illinois DNR. The Illinois DOT *Procedures Memorandum* provides preliminary compensation ratios based on the level of wetland impact and the location of wetland compensation with respect to impact locations. Preliminary wetland compensation goals have been developed for the I-74 project following guidelines regarding replacement and sequencing stated in the Illinois IWPA. Generally, the rule establishes replacement requirements that vary depending on whether mitigation occurs onsite, offsite (in-basin), or offsite (out-of-basin). Other factors, such as the presence of state or federally listed species, classification as an Illinois Natural Area, or a Floristic Quality Index (FQI) score of greater than or equal to 20, also determine compensation goals. Specific relevant mitigation guidance as prescribed in Illinois is as follows:

- In-kind wetland compensation would be provided on the basis of wetland function and type classification (per Cowardin et al. 1979).
- Individual wetland impacts less than 0.5 acres in size would be mitigated at a ratio of 1.5:1 (onsite), 2.0:1 offsite (in-basin), and 3.0:1 offsite (out-of-basin).
- Individual wetland impacts greater than 0.5 acre (0.2 hectares) in size would be mitigated at a ratio of 2.5:1 (onsite), 4.0:1 offsite (in-basin), and 5.5:1 offsite (out-of-basin).
- Wetlands that contain a state or federally listed species would be compensated in kind at a ratio of 5.5:1.
- Sites that have been designated state natural areas or have an FQI score greater than 20 would be compensated at a ratio of 5.5:1.

Three wetlands would be impacted as a result of proposed improvements to I-74: Wetland 5, Wetland 6, and Wetland 7. Exact mitigation ratios will depend on the location of the mitigation site with respect to wetland impact locations. Wetlands #5 and #6 are located within the Natural Area; therefore, Illinois mitigation rules apply and impacts to these wetlands would likely be mitigated at 5.5:1 ratio. Wetland 7, predominantly emergent marsh and located in Iowa, would be mitigated according to Iowa guidance. Mitigation for impacts to Wetland 7 would likely be offsite and in-kind; therefore, a mitigation ratio of 1.5:1 may be appropriate. Estimated mitigation requirements are discussed in Table 4-24, *Summary of Estimated Mitigation Requirements*.

TABLE 4-24
Summary of Estimated Mitigation Requirements

Wetland #	Wetland Impacts (acres)		Mitigation Ratio	Required Mitigation (acres)	
	Alignment E	Alignment F		Alignment E	Alignment F
5 and 6	2.1	0.2	5.5:1 [a]	11.6	1.1
7	0.9	0.9	1.5:1 [b]	1.4	1.4
Total	**3.0**	**1.1**		**13.0**	**2.5**

[a] Based on estimated mitigation ratios prescribed in Illinois.

[b] Based on estimated mitigation ratios prescribed in Iowa.

Thus, 13.0 acres of wetland mitigation may be required if Alignment E is chosen or 2.5 acres of mitigation may be required if Alignment F is chosen.

While it is yet undetermined whether wetland mitigation for proposed improvements to I-74 will occur in Iowa or Illinois, the following text describes an area in Iowa and within the project area that may have potential for wetland mitigation.

Wetland delineations were performed on a linear drainageway located about 2,000 feet south of the I-74/53rd Street interchange on the east side of I-74. The site was found to not meet one or more of the mandatory parameters of wetlands as defined in the *1987 Army Corps of Engineers Wetland Delineation Manual* (the 1987 Manual). (See the delineation data sheets the Wetland Technical Report for more information.) This unnamed intermittent creek is a

tributary of Duck Creek. Because of excessive unmanaged stormwater flow, this channel has become incised about 7 feet below its natural floodplain. Depth of flowing water in this channel was about 4 inches. Based on severe stream incisement, wetland hydrology has been effectively removed from this site. Soils at this site are hydric based on the 1987 Manual criteria and borderline based on the *NRCS Hydric Soil Field Indicators* criteria. It appears that hydrology could be readily restored by installing a weir structure in the incised channel of the drainageway. A cursory review of aerial photography and topographic maps indicated that this site may provide an estimated 10 acres of wetland mitigation.

4.7 Water Resource Permits

No permits are required for the No-Action Alternative.

The build alternatives would require the following permits:

- A water quality certification under Section 401 of the Clean Water Act, as amended, would be required from the Illinois EPA and Iowa DNR.
- An Individual Section 404 permit, issued by the U.S. Army Corps of Engineers, may be required for this project.
- Permits would be required from the Illinois and Iowa DNRs for work within floodplains. In Illinois, a Construction in Floodways of Rivers, Lakes and Streams permit will be acquired from the Illinois DNR, Office of Water Resources. In Iowa, an Iowa DNR floodplain permit will also be acquired.
- A Rivers and Harbors Act Section 9 Navigable Waters permit, issued by the U.S. Coast Guard, would be required for construction, modification, replacement, or removal of any bridge or causeway over a navigable waterway. (As part of this permit, water quality certification must be obtained from the Illinois EPA and the Iowa DNR.)

Additionally, it is anticipated this project would result in the disturbance of 1 or more acres of total land area. Accordingly, it is subject to the requirement for a National Pollutant Discharge Elimination System (NPDES) permit for stormwater discharges from the construction sites. The Iowa DOT and the Iowa DNR developed a pollution control program to protect the environment from sedimentation and construction material pollutants discharged from construction activities. These procedures and specifications would be used for highway construction, and the Iowa DOT is committed to ensuring that BMPs are followed by the highway contractor. This agreement satisfies the requirements for an NPDES permit and Section 402 of the federal CWA. Other construction-related permits include temporary batch plant permits issued by the Iowa DNR. Mitigation plans would be developed to comply with the specific permit requirements.

Permit coverage for the project would be obtained either under the Illinois EPA General Permit for Stormwater Discharges from Construction Site Activities (NPDES Permit No. ILR10) or under an individual NPDES permit. Requirements applicable to such a permit would be followed, including the preparation of a Stormwater Pollution Prevention Plan. Such a plan shall identify potential sources of pollution that may reasonably be expected to affect the quality of stormwater discharges from the construction site. The plan would also

describe and ensure the implementation of practices that would be used to reduce the pollutants in discharges associated with construction site activity and to ensure compliance with the terms of the permit.

4.8 Floodplain Impacts

The proposed project was reviewed in accordance with Executive Order 11988 "Floodplain Management." The floodplain impact analysis in this Draft EIS has two components:

- An analysis of volume fill required per alternative in 100-Year floodplain as designated by Federal Emergency Management Agency (FEMA) Flood Insurance Rate maps (FIRM).
- Hydraulic analyses and modeling to calculate estimated backwater stage changes resulting from in-stream structures.

The lost floodwater storage volume for each potential floodplain encroachment would be calculated during a later design phase, and the need and volume for compensatory storage would be determined.

No-Action Alternative

No floodplains would be impacted by the No-Action Alternative. Floodplain encroachments by the build alternatives are discussed below.

South Section

No floodplains exist in this section of the project.

Central Section

A transverse crossing of the Mississippi River floodplain would be required with either Alignment E or F. The opening size of the existing I-74 structures would be maintained with the new structure. The exact impacts to flood heights would depend upon the type of structure to be constructed. This decision will not be made until the Final EIS stage of the project.

North Section

A transverse crossing of the Duck Creek floodplain currently exists. The replacement of the structures carrying I-74 over Duck Creek will maintain the existing opening size and are not expected to negatively impact existing flood heights.

The modifications to drainage structures included in this project will result in an insignificant change in their capacity to carry floodwater. This change will cause a minimal increase in flood heights and flood limits. These minimal increases will not result in any significant adverse impacts on the natural and beneficial floodplain values; they will not result in any significant change in flood risks or damage; and they do not have significant potential for interruption of termination of emergency service or emergency evacuation routes; therefore, it has been determined that this encroachment is not significant.

4.8.1 Indirect and Cumulative Impacts

Given the requirement for compensatory volume storage as mitigation for impacts to designated 100-year floodplain, it is unlikely that the proposed improvements to I-74 would result in substantial indirect or cumulative impacts to the 100-year floodplain. Further, it is unlikely that improvements to I-74 would systematically direct future development toward inevitable impacts to 100-year floodplains. Currently a dike is present along the Mississippi River on the Iowa side, though no dike is present along the Illinois side of the river. While dikes can prevent flooding to human habitation, they also diminish the ability of the natural floodplain to attenuate and desynchronize flood events. It is not anticipated that the proposed improvements to I-74 would necessitate the construction of a dike on the Illinois side of the Mississippi River, nor upgrading of the dike on the Iowa side of the Mississippi River.

In-stream structures that would elevate the backwater stage substantially could diminish the ability of backwater floodplains to receive floodwaters. However, hydraulic modeling performed on relevant waterways in the I-74 corridor study area show that any backwater stage change resulting from all proposed alternatives are well within acceptable standards.

4.9 Upland Habitat and Wildlife Impacts

All of the corridor study area in Illinois side is urbanized. Most of the Iowa side of the corridor study area is urbanized, although a short strip of agricultural land is present near the north end of the project area, which is being converted. A small percentage of land use within the corridor study area is natural habitat; most of it is associated with the Mississippi River or Duck Creek.

It is anticipated that the proposed improvements to I-74 would neither substantially impact wildlife species nor alter their migration, traveling, or foraging corridors. The No-Action Alternative would not impact wildlife species.

4.9.1 Indirect and Cumulative Impacts

With accepted BMPs and mitigation implemented, none of the proposed alternatives would have a substantial indirect or cumulative impact on the wildlife that use project area streams, rivers, and wetlands. Further, none of the proposed alternatives would systematically direct future development to substantially impact wetland dependent wildlife in the project area.

4.10 Designated Natural Areas

4.10.1 Mississippi River – Moline Natural Area

The Natural Area, designated on the Illinois Natural Areas Inventory (INAI), is located beneath, upstream, and downstream of the existing and proposed Mississippi River bridges on the Illinois side. Potential impacts to the Natural Area include bridge footprint impacts (the proposed pier footprint will be approximately twice that of the existing pier footprint) and impacts to listed mussel species that inhabit the Natural Area. Approximately 556,000 square feet of the bridge carrying Alignment E over the Mississippi River would cross over the INAI site, while approximately 519,000 square feet of the bridge carrying Alignment F over the

Mississippi River would cross the INAI site. The mitigation strategy for mussel impacts will be to relocate mussels from in-stream construction areas to suitable habitat elsewhere within the Natural Area. The Natural Area and conceptual mussel relocation is discussed in Appendix D, *Detailed Action Report*. The No-Action Alternative would not impact the INAI site.

4.10.2 Indirect and Cumulative Impacts

The mussel relocation associated with improvements to the I-74 bridge would be considered as mitigation for impacts to the Natural Area. Thus, the road improvement project would not contribute to net indirect or cumulative impacts to the Natural Area.

4.11 Threatened and Endangered Species

The Mississippi River, within the I-74 project area, is used as wintering habitat for the bald eagle (*Haliaeetus leucocephalus)* (federally threatened). Wintering habitat consists of trees used for bald eagle perching near ice-free water bodies. While a few trees would likely be removed on islands under the existing bridge in the course of bridge replacement, there is abundant similar habitat on unimpacted portions of the islands and along the banks of the Mississippi River. Therefore, any impacts to bald eagle wintering habitat would be negligible. The Elton-Fox eagle night roost site is located within Rock Island County, Illinois, on the Mississippi River; however, it is not within the I-74 project area and would not be impacted as a result the proposed bridge improvements.

No state or federally-listed plant species would be affected by the project.

One federally endangered mussel species, the Higgins' eye pearly mussel (*Lampsilis higginsi*) and three state-listed mussel species, the spectacle case (*Cumberlandia monodonta*), the sheepnose (*Plethobasus cyphyus*), and the butterfly mussel (*Ellipsaria lineolata*), are known to inhabit mussel beds near the I-74 bridge. Impact avoidance, minimization, and mitigation strategies for these mussel species are covered in the Detailed Action Report associated with this DEIS. In summary, a reconnaissance dive at existing and proposed bridge pier locations would be required in order to assess mussel resources. Mussels would need to be removed from within about 10 feet of each existing and proposed pier and relocated according to an approved mussel relocation plan. Mussel relocation has been used as a successful mitigation strategy on several similar bridge replacement projects.

The Detailed Action Report associated with this DEIS (located in Appendix D, *Detailed Action Report*) will serve as the biological assessment for federally-listed species within the project area as part of the Section 7 consultation process. The reach of the Mississippi River on the Illinois side within the project area lies within a designated INAI, the Moline Natural Area. The Illinois DNR responded to the Detailed Action Report with a letter dated March 21, 2003 (see Appendix C, *Correspondence*). In summary, the letter recommended that the Illinois DOT seek an Incidental Take Authorization (ITA) before proceeding with the I-74 improvements. The Illinois DNR will close Section 7 consultation upon receipt of the ITA application submitted by the Illinois DOT. Further, the Illinois DNR recommended that bald eagle nest locations be reviewed and refined prior to the beginning of road and bridge construction.

All proposed build alternatives for I-74 would likely have a similar impact on state or federally listed species. Consultation with the Illinois DNR is currently open for all species

noted above, pending approval of the Detailed Action Report. No impact on state or federally listed species is expected by the No-Action Alternative.

4.11.1 Indirect and Cumulative Impacts

An analysis of cumulative impacts to the Higgins' eye pearly mussel (*Lampsilis higginsi*) and other listed mussel species requires a brief review of similar Mississippi River crossings and their effect on listed mussel species, i.e., those known to occur within the I-74 corridor study area. Given the linear nature of mussel habitat, i.e. perennial riverine, the geographic area used for the analysis of cumulative impacts to listed mussels generally extends farther afield than such analyses for other resource categories. Key transportation projects involving potential impacts to the Higgins' eye pearly mussel (*Lampsilis higginsi*) include the following:

- **St. Croix River Bridge Crossing at Stillwater, Minnesota** (Minnesota Department of Transportation). Higgins' eye pearly mussel was present, the mussel bed has been relocated and monitored for 2 years. Mussel mortality is relatively low and, thus far, the relocation appears to be successful.
- **The Sylvan Slough at Moline, Illinois.** In preparation for replacement of the Moline Bridge from Moline, Illinois, to Arsenal Island, mussels were relocated (Oblad 1979). Rare mussels were relocated to a point directly under the existing I-74 bridge between the Moline riverbank and the small island near the Moline riverbank (Oblad 1979). Common mussel species were relocated to suitable habitat elsewhere in the Mississippi River. The river bottom surrounding two proposed bridge piers were cleared of mussels. The area that was cleared of mussels for each pier was equal to the footprint of the proposed cofferdam plus 10 feet out from each cofferdam edge. Recapture experiments showed that mortality rates for the relocated Higgins' eye pearly mussel were quite low.
- **Maintenance of 9-foot navigation channel in the Mississippi River** (U.S. Army Corps of Engineers). Generally, dredging, dam construction, extension of zebra mussel range, and hindrance of native mussel host fish species ranges has been greatly detrimental to native mussel populations. Many of these factors have led to population declines of the Higgins' eye pearly mussel (*Lampsilis higginsi*).

It is anticipated that without mitigation, e.g., mussel relocation, there is a potential for adverse impacts to listed mussel species near the I-74 corridor study area.

4.11.2 Mitigation for Threatened and Endangered Species

Given the negligible impacts to bald eagle wintering habitat, no mitigation would be required. Mussel relocation would serve as the mitigation strategy for potential impacts to listed mussel species in the project area. Further details are provided in the Detailed Action Report associated with this Draft EIS, which is located in Appendix D, *Detailed Action Report*.

The Illinois DNR responded to the Detailed Action Report with a letter dated March 21, 2003 (see Appendix C, *Correspondence*). In summary, the Illinois DNR letter recommended that the Illinois DOT seek an ITA before proceeding with the I-74 improvements. The Illinois DNR will close Section 7 consultation upon receipt of the ITA application submitted by the Illinois DOT. Further, the Illinois DNR recommended that bald eagle nest locations be reviewed and refined prior to the beginning of road and bridge construction.

4.12 Section 4(f) Regulation

Section 4(f) of the Transportation Act of 1966 (49 USC 303) states that federal funds may not be approved for projects that use land from a publicly-owned park, recreation area, wildlife and waterfowl refuge, or any significant historic site unless it is determined that no feasible and prudent alternative exists. The law also points out that all possible planning to minimize harm to 4(f) properties must occur. The following sections describe the potential impacts to publicly owned parks and historic resources in the project area. Pursuant to Section 4(f), a separate draft Section 4(f) Statement has been prepared for this project and is circulated with this Draft EIS.

4.13 Public Use Lands

No-Action Alternative

No right-of-way would be required for this alternative. Therefore, no public use lands will be impacted.

South Section

In the South Section of the project (south of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no public use lands will be impacted.

Central Section—Mainline/Interchange Improvements

One public use site is impacted by the mainline/interchange improvements on the Bettendorf side, the Bill Glynn Memorial Park. The entire parcel is converted to transportation uses. It should be noted, however, that the Bill Glynn Memorial Park is not considered a 4(f) property. As discussed in Section 3, *Affected Environment*, Bill Glynn Memorial Park is an excess parcel owned by the Iowa DOT.

A second public use site, McManus Park, is currently located immediately adjacent to existing I-74 and would continue to be adjacent to the interstate under the build alternatives. Given its existing position and exposure to interstate traffic, there would not be a significant change in noise levels or vibration levels if any of the build alternatives were chosen. With regard to noise, most locations in the park would actually experience a slight decrease in noise levels, in the range of 1 to 2 dBA.

Impacts to public use lands by mainline/interchange interchange improvements are summarized in Table 4-25, *Impacts to Public Use Lands Per Mainline/Interchange Improvement*.

TABLE 4-25
Impacts to Public Use Lands Per Mainline/Interchange Improvement

	Moline			Bettendorf	
	M1	M2	Bridge	B1	B2
Alignment E	0	0	0	1	1
Alignment F	0	0	0	1	1

Central Section—Local Roadway Improvements

Impacts to public use lands by local roadway improvements are discussed below.

U.S. 67 Improvements. The proposed U.S. 67 improvements would not impact any public use lands.

Kimberly Road/Holmes Street Improvements.

- Improvements to Kimberly Road can be made with either the diamond interchange (B1) or the parclo interchange (B2) and do not require any additional right-of-way. Therefore, no additional public use lands would be impacted.
- Improvements to Holmes Street is only compatible with the diamond interchanges (B1) and would require 0.06 acres of McManus Park temporarily for Holmes Street improvements. It would be temporarily used to excavate for the construction of a retaining wall on the north side of Holmes Street.

North Section

In the North Section of the project (north of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no public use lands will be impacted.

4.14 Considerations Relating to Bicyclists and Pedestrians

A bike/pedestrian path is under consideration for the Mississippi River crossing portion of the I-74 corridor. Two scenarios for the placement of the corridor are under consideration. The first scenario would use one of the existing I-74 bridges for carrying bicycles and pedestrians across the river. The second scenario would construct a bike/pedestrian path on a new I-74 Mississippi River bridge. A path along a new bridge would be separated from the I-74 travel lanes for safety purposes. For both scenarios, the trail connections would lie along the Mississippi River banks on each side of the river, where existing riverfront trails would provide a logical connection.

4.15 Cultural Resources (Historic and Archaeological)

4.15.1 Cultural Resources in the Corridor

As discussed in Section 2, *Alternatives*, during the alternatives development process, a number of alignments were developed to try to avoid as many historic resources as possible. While the No-Action Alternative does not result in impacts to any cultural resources in the project corridor, build Alignments E and F have been carried forward for further consideration, in part, due to their ability to avoid more historic and section 4(f) resources than other build alignments. While many historically important resources were able to be avoided, it is not feasible to avoid others. As a result, both of the alignment alternatives and all of the interchange alternates would impact historically relevant structures. Mitigation for historic properties that are impacted by the proposed project will be incorporated into a Memorandum of Agreement upon the completion of the Final EIS. Requirements for Section 106 of the National Historic Preservation Act will be fulfilled to the satisfaction of both the Iowa and Illinois SHPOs. Impacts to historic resources are discussed below. For detailed descriptions of these resources, see Section 3.12.2, *Standing Structures*.

South Section

In the South Section of the project (south of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no cultural resources will be impacted.

Central Section—Mainline/Interchange Improvements

Potential impacts to historic structures are noted in Table 4-26, *Impacted 4(f) Properties*. As can be seen from the table, Alignment F with interchange variation M1 would have the fewest impacts to historic structures in Moline, with a total of three. Alignment E with the M2 interchange would have the most, at a total of five. For most of the properties, the impacts are to the actual structures and would be considered total displacements. However, the Scottish Rite Cathedral will only be impacted in the southeast corner of the parcel. The impact, which is required by the 19th Street ramp improvements for all alternatives, would likely be a temporary easement required for construction of a retaining wall. The retaining wall is proposed to avoid a permanent impact to the property. It should be noted that the portion of the Scottish Rite Cathedral parking lot impacted by the project was not part of the original property on which the cathedral sits. It was acquired during the 1970s.

It is likely that the existing historic bridge would be impacted, either directly or indirectly, by the proposed action. A direct impact would occur if the bridge were demolished. However, demolition of the bridge does not totally rely on the construction of the build alternatives, but rather whether or not a local community volunteers adopt jurisdiction of the bridge and provide that it would be used for transportation purposes, including bicycle/pedestrian accommodations. Even if the bridge were to remain in place, it is likely the existing bridge would be visually impacted if it remains standing and a new structure is built adjacent to it, thus constituting an indirect impact.

In Bettendorf, the two mainline/interchange improvement alternatives would have the same impact to cultural resources. Impacts to cultural resources by mainline/interchange interchange improvements are summarized in Table 4-26, *Impacted 4(f) Properties*.

TABLE 4-26
Impacted 4(f) Properties

	Alignment E Impacts		Alignment F Impacts	
	M1 or B1 *	**M2 or B2 ***	**M1 or B1**	**M2 or B2**
Properties in Moline				
Scottish Rite Cathedral	X	X	X	X
C. I. Josephson House	No impact	X	No impact	X
Knights of Pythias Lodge Hall	X	X	X	X
Eagle Signal Building	X	X	No impact	No impact
Davenport, Rock Island, and Northwestern RR Depot	X	X	X	X
Properties in Bettendorf				
Iowa-Illinois Memorial Bridge and Monument	X	X	X	X
Iowana Milk Farms Company	X	X	X	X
Total Number of Impacted Properties	**6**	**7**	**5**	**6**

X (impact)

* Interchange Variations M1 and M2 apply to properties in Moline. Interchange Variations B1 and B2 apply to properties in Bettendorf.

Central Section—Local Roadway Improvements

Neither the proposed U.S. 67 improvements nor the Kimberly Road/Holmes Street improvements would impact cultural resources.

North Section

In the North Section of the project (north of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no cultural resources will be impacted.

4.15.2 Measures to Minimize Impact

Many of the cultural resources would be impacted by mainline/interchange improvements. The Iowa-Illinois Memorial Bridge, as mentioned above, would be impacted visually if a new structure was built. However, per U.S. Coast Guard regulations, for the historic bridge to remain standing, it must be used for transportation purposes. Alternative uses for the historic bridge are outlined in Table 4-27, *Summary of Minimization Measures for Specific Properties*, along with the minimization measurements considered for the other cultural resources impacted by the mainline/interchange improvements.

As indicated in Table 4-27, minimization options exist for Iowa-Illinois Memorial Bridge, Eagle Signal Building, and Scottish Rite Cathedral. These options will be coordinated with the property owner and appropriate SHPO. As noted in Section 4.15.1, *Cultural Resources in the Corridor*, mitigation will be discussed in the FEIS.

TABLE 4-27
Summary of Minimization Measures for Specific Properties

Property	Minimization Measure(s)	Carried Forward?
Scottish Rite Cathedral	Construct a retaining wall to avoid permanent use of Scottish Rite Cathedral property.	**Yes**
Knights of Pythias Lodge Hall	All alternatives would impact the building directly. Minimization of impact to the building was not possible.	N/A
Davenport, Rock Island, and Northwestern Railroad Depot	Increasing the ramp divergence angle.	No
Iowa-Illinois Memorial Bridge and Monument	Reuse of the bridges for I-74 traffic with construction of a new structure adjacent to the existing bridges.	No
	Construction of a new bridge on new alignment for I-74 traffic with reuse of the existing bridges for local traffic	No
	Construction of a new bridge on new alignment for I-74 traffic with reuse of the existing bridges for transit.	No
	Construction of a new bridge on new alignment with reuse of one of the existing bridges for pedestrian / bicycle traffic.	**Yes**
	Widen the existing bridges to accommodate additional lanes.	No
	Relocate the monument to another position near the bridge.	**Yes**
Iowana Milk Farms Company	Increasing the ramp divergence angle.	No

4.16 Special Waste

4.16.1 Hazardous Waste

No CERCLIS site(s) will be involved nor impacted by the proposed alternatives.

4.16.2 Non-Hazardous Waste

A PESA for special waste on the Illinois side of the project corridor was conducted by the Illinois State Geological Survey. The PESA concluded that the alignments could involve sites potentially impacted with regulated substances. Further, it has been determined that not all of the sites would be avoided. The sites which may not be avoided include Kone Inc., Former Frank Foundries Corp., Deere & Co. Parking Lot, Brannen's Auto Works, Vacant Lot (2000 Block-4th Avenue), Riverside Products, Vacant Lot (1934 5th Avenue), Office Building (602-608 19th Street), Scottish Rite Cathedral parking lot, and Vacant Lot (702 19th Street). Figure 3-4, *Potentially Contaminated Sites*, at the end of Section 3, *Affected Environment,* illustrates these properties' locations. Some of the sites involve petroleum contamination from leaking underground storage tanks.

A Limited Phase I Environmental Investigation was completed to identify potentially contaminated properties on the Iowa side of the project corridor. These are depicted on Figure 3-4, *Potentially Contaminated Sites,* at the end of Section 3, *Affected Environment*. Sites that may be affected by the proposed alignments include Great American Window, H&H Car Care Center, Dale Snapp Co., Crescent Economy Inc., Former Showboat Car Wash,

Former Hoyt & Son Auto, Johnny's Amoco (BP)/QC Mart (BP), Twin Bridges 66, Former Ross' Drive Through, Dart Mart, Knox Corporation, Adel parking lot/ramp, and Village Inn. For these sites, further subsurface investigations are recommended in order to define the precise location and nature of potential contamination.

Former Frank Foundries Corp. in Moline, Illinois was enrolled in the Illinois EPA Site Remediation Program; a No Further Remediation letter was issued in 1992. The property subsequently experienced a leaking underground storage tank event in 1996 and after over-excavation of the site, a second No Further Remediation letter was issued in 1998 indicating the land was authorized for residential or industrial/commercial uses. Remediation is underway on the Twin Bridges 66 property in Bettendorf. Overexcavation, soil venting, and *in situ* groundwater treatment are methods used in the site remediation program. Clean up was completed at the Handy Stop in Bettendorf in March 2001; a certificate indicating no further action was required was issued in November 2001. No USEPA Brownfields Pilot Sites are within the project corridor.

The No-Action Alternative does not impact sites that are known to contain or potentially contain non-hazardous waste. Impacts by build alternatives to sites within the corridor that are known to contain or potentially contain non-hazardous waste are discussed below and summarized in Table 4-28, *Impacts to Sites with Regulated Materials Per Mainline/Interchange Improvement*. The contamination from impacted sites will be managed and disposed of in accordance with applicable federal and state laws and regulations and in a manner that will protect human health and the environment.

South Section

In the South Section of the project (south of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no parcels with regulated materials will be impacted.

Central Section—Mainline/Interchange Improvements

As right-of-way requirements are localized to the downtown areas of Moline, Illinois, and Bettendorf, Iowa, so are impacts to potentially contaminated sites. Impacts to these sites by mainline/interchange interchange improvements are summarized in Table 4-29, *Impacts to Sites with Regulated Materials Per Mainline/Interchange Improvement.*

TABLE 4-28
Impacts to Sites with Regulated Materials Per Mainline/Interchange Improvement

	Moline			Bettendorf	
	M1	**M2**	**Bridge**	**B1**	**B2**
E Alignment	Kone Inc. (Industrial/ transformer site)	Kone Inc. (industrial/ transformer site)	0	Great American Window (former UST site with no accompanying documentation)	Great American Window (former UST site with no accompanying documentation)
	Former Frank Foundries Corp. (LUST/former UST/former industrial/former transformer site)	Former Frank Foundries Corp. (LUST/former UST/former industrial/former transformer site)		H&H Car Care Center (LUST/UST)	H&H Car Care Center (LUST/UST)
	Vacant lot (2000 block-4th Avenue) (former industrial site)	Vacant lot (2000 block-4th Avenue) (former industrial site)		Dale Snapp Co. (LUST/UST)	Dale Snapp Co. (LUST/UST)
	Deere & Co. parking lot (former industrial site)	Deere & Co. parking lot (former industrial site)		Former Ross' Drive Through (potential BTEX contamination from Dale Snapp Co.)	Former Ross' Drive Through (potential BTEX contamination from Dale Snapp Co.)
	Riverside Products (industrial site)	Riverside Products (industrial site)		Dart Mart (potential BTEX contamination from Twin Bridges 66)	Dart Mart (potential BTEX contamination from Twin Bridges 66)
	Office building (602-608 19th Street) (possible UST site)	Vacant lot (702 19th Street) (possible UST site)		Former Hoyt & Son Auto (LUST/UST)	Former Hoyt & Son Auto (LUST/UST)
	Scottish Rite Cathedral parking lot (possible UST/former commercial site)	Brannen's Auto Works (possible UST site)		Twin Bridges 66 (LUST/UST)	Twin Bridges 66 (LUST/UST)
	Vacant lot (702 19th Street) (possible UST site)	Office building (602-608 19th Street) (possible UST site)		Crescent Economy, Inc. (RCRIS)	Crescent Economy, Inc. (RCRIS)
		Scottish Rite Cathedral parking lot (possible UST/former commercial site)		Former Showboat Car Wash (LUST/UST)	Knox Corporation (potential BTEX contamination from Johnny's Amoco and Twin Bridges 66 sites)
		Vacant lot (1934 5th Avenue) (possible UST site)		Knox Corporation (potential BTEX contamination from Johnny's Amoco and Twin Bridges 66 sites)	Johnny's Amoco (BP)/QC Mart (BP) (RCRIS/LUST/UST)
				Johnny's Amoco (BP)/QC Mart (BP) (RCRIS/LUST/UST)	Adel parking lot/ramp (former filling station with no documentation on contamination, but potential contamination exists)
				Adel parking lot/ramp (former filling station with no documentation on contamination, but potential contamination exists)	

TABLE 4-28 (CONTINUED)
Impacts to Sites with Regulated Materials Per Mainline/Interchange Improvement

	Moline			Bettendorf	
	M1	**M2**	**Bridge**	**B1**	**B2**
F Alignment	Kone Inc. (Industrial/ transformer site)	Kone Inc. (industrial/ transformer site)	0	Great American Window (former UST site with no accompanying documentation)	Great American Window (former UST site with no accompanying documentation)
	Former Frank Foundries Corp. (LUST/former UST/former industrial/former transformer site)	Former Frank Foundries Corp. (LUST/former UST/former industrial/former transformer site)		H&H Car Care Center (LUST/UST)	H&H Car Care Center (LUST/UST)
	Vacant lot (2000 block-4th Avenue) (former industrial site)	Vacant lot (2000 block-4th Avenue) (former industrial site)		Dale Snapp Co. (LUST/UST)	Dale Snapp Co. (LUST/UST)
	Deere & Co. parking lot (former industrial site)	Deere & Co. parking lot (former industrial site)		Former Ross' Drive Through (potential BTEX contamination from Dale Snapp Co.)	Former Ross' Drive Through (potential BTEX contamination from Dale Snapp Co.)
	Riverside Products (industrial site)	Riverside Products (industrial site)		Dart Mart (potential BTEX contamination from Twin Bridges 66)	Dart Mart (potential BTEX contamination from Twin Bridges 66)
	Office building (602-608 19th Street) (possible UST site)	Vacant lot (702 19th Street) (possible UST site)		Former Hoyt & Son Auto (LUST/UST)	Former Hoyt & Son Auto (LUST/UST)
	Scottish Rite Cathedral parking lot (possible UST/former commercial site)	Brannen's Auto Works (Possible UST site)		Twin Bridges 66 (LUST/UST)	Twin Bridges 66 (LUST/UST)
	Vacant lot (702 19th Street) (possible UST site)	Office building (602-608 19th Street) (possible UST site)		Crescent Economy, Inc. (RCRIS)	Crescent Economy, Inc. (RCRIS)
		Scottish Rite Cathedral parking lot (possible UST/former commercial site)		Former Showboat Car Wash (LUST/UST)	Village Inn (former filling station with no documentation on contamination, but potential contamination exists)
		Vacant lot (1934 5th Avenue) (possible UST site)		Village Inn (former filling station with no documentation on contamination, but potential contamination exists)	Knox Corporation (potential BTEX contamination from Johnny's Amoco and Twin Bridges 66 sites)
				Knox Corporation (potential BTEX contamination from Johnny's Amoco and Twin Bridges 66 sites)	Johnny's Amoco (BP)/QC Mart (BP) (RCRIS/LUST/UST)
				Johnny's Amoco (BP)/QC Mart (BP) (RCRIS/LUST/UST)	Adel parking lot/ramp (former filling station with no documentation on contamination, but potential contamination exists)
				Adel parking lot/ramp (former filling station with no documentation on contamination, but potential contamination exists)	

TABLE 4-29
Impacts to Sites with Regulated Materials Per Mainline/Interchange Improvement

	Moline			Bettendorf	
	M1	M2	Bridge	B1	B2
Alignment E	8	10	0	12	11
Alignment F	8	10	0	13	12

Central Section—Local Roadway Improvements

Impacts to sites with regulated materials by local roadway improvements are discussed below.

U.S. 67 Improvements.

- Improvements to the U.S. 67 with a connection off of a diamond interchange (B1) in a 90-degree configuration would impact seven parcels containing regulated materials.
- Improvements to the U.S. 67 with a connection off of a diamond interchange (B1) in a diagonal configuration would impact ten parcels containing regulated materials.
- Improvements to the U.S. 67 with a connection off of a parclo interchange (B2)[10] in a 90-degree configuration would impact nine parcels containing regulated materials.
- Improvements to the U.S. 67 with a connection off of a parclo interchange (B2)[11] in a diagonal configuration would impact 12 parcels containing regulated materials.

Kimberly Road/Holmes Street Improvements.

- Improvements to Kimberly Road can be made with either the diamond interchange (B1) or the parclo interchange (B2); therefore, no additional sites with regulated materials would be impacted.
- Improving Holmes Street, only compatible with the diamond interchanges (B1), would not impact parcels containing regulated materials.

North Section

In the North Section of the project (north of the downtown area), the proposed improvements would be completed within existing right-of-way. Therefore, no parcels with regulated materials will be impacted.

[10] Impacts shown for Interchange Variation B2 reflect 2 lanes in each direction along Grant Street. Providing 3 lanes in each direction would have impacts similar to Interchange Variation B1.

[11] Impacts shown for Interchange Variation B2 reflect 2 lanes in each direction along Grant Street. Providing 3 lanes in each direction would have impacts similar to Interchange Variation B1.

4.17 Visual Impacts/Aesthetics

In the southern and northern sections of the I-74 study area, the viewshed would not be impacted by the proposed changes. In these areas, the existing interstate facility dominates the landscape. The proposed improvements in these sections consist of widening to the inside of the existing lanes, minor improvements to the Middle Road and U.S. 6 interchanges, and potential reconstruction of the interchange at 53rd Street.

In these sections, the proposed improvements would not alter the viewshed. The additional lanes would not require additional right-of-way, and thus would not convert any land currently used for other purposes to transportation uses. The I-74 corridor in these areas would continue to maintain the urban interstate setting that currently exists.

The viewshed in the river valley is the most likely area to experience a change in conditions in association with the build alternatives; no changes would occur as a result of the No-Action Alternative. In this area, the following observations can be made:

- The existing bridges dominate the visual environment of the site because they can be seen from distant view points due to their scale and location on the river. As the surrounding cities do not have very high buildings, it is envisioned that new bridges would continue to be the main visual focus of the area. They would serve as landmarks that would identify the area.
- The viewers most affected by the project would be the motorists, because they would experience the new bridges at long- and short-view ranges. As the number of bridge users would increase in the future, they would continue to be the most affected. People located near the river and downtown in the adjacent cities would also be affected because it is in their viewshed and a significant element of the landscape.

The two alternative alignments have very similar impacts on the visual resources, particularly if both include demolishing the existing bridges. Alignment F, which is not parallel to the existing bridges, could represent a slight improvement over Alignment E because it has simpler connections to the existing highway system and also avoids locating the bridges over the river islands.

Each alignment would be able to be integrated into the existing setting. The alignments are not substantially different to the alignment of the existing bridges because the clearances over the water are similar. The main difference is in the width. A concept that retains one of the existing bridges for bicycle/pedestrian use can be integrated into the visual environment if the new bridge is designed carefully and considers the related architectural issues.

4.17.1 Concepts for a New River Crossing Structure

Three concepts appear to be practical solutions for a new structure crossing the Mississippi River: a cable-stayed bridge, an arch bridge, and a suspension bridge. These bridge concepts are only being proposed for consideration by the Illinois and Iowa DOTs and the general public at this point. A recommendation on the bridge type will be identified in the Final EIS.

The proportion of major bridge components, scale of the overall structures, and architectural general appearance were major considerations in selecting the potential bridge concepts for

the proposed new structures. Several visualizations were prepared to study the concepts from different viewpoints and analyze how they would fit in the existing environment with and without keeping one of the existing bridges. These can be found on Figure 4-2, *Mississippi River Crossing Bridge Visualizations,* at the end of Section 4.

Cable-Stayed Bridge Concept

The cable-stayed bridge concept consists of a structure supported by a single delta tower about 420 feet tall. Due to the great height of the tower, this concept would present the most dramatic approach to the river valley for motorists, and would be visible for long distances up and down the river.

Arch Bridge Concept

This concept would use three arches, one vertical and two inclined. The inclined arches would be required to prevent obstruction of the deck opening at the roadway level. The central arch would be about 200 feet tall. The arches would be tied, and all three would support a plane of cables. The arches would clearly delineate the location of the navigation channel for individuals viewing the bridge up or downstream. This design would be unique in the Quad Cities area, but would be compatible with other designs in this reach of the Mississippi River.

Suspension Bridge Concept

Two single concrete towers about 220 feet tall would be used in this concept. Three planes of cables would be used. This concept was developed to be compatible with the existing I-74 bridges, in the event that one of them were to be retained for bicycle/pedestrian accommodations. This concept uses single shaft towers rather than the H-type towers used by the existing bridges because with the width of the new bridge, the H-type towers would draw attention to the differences in the structures.

4.18 Energy

Construction of the build alternatives would require indirect consumption of energy for processing materials, construction activities, and maintenance for the lane miles to be added within the project limits. Energy consumption by vehicles in the area may increase during construction due to possible traffic delays.

When construction of the proposed improvement is complete, traffic congestion and turning conflicts will be minimized along the route, and therefore vehicular stopping and slowing conditions will be reduced. Additional benefits would be realized from increased capacity and smoother riding surfaces. This would result in less direct and indirect vehicular operational energy consumption for the build alternative than for the No-Action Alternative. Thus, in the long term, post-construction operational energy requirements should offset construction and maintenance energy requirements and result in a net savings in energy usage.

The project includes provisions for improved bicycling and walking conditions, thereby encouraging travel by these non-motorized and thus non-energy consuming modes of transportation.

The No-Action Alternative would not result in an immediate increase in energy as a result of construction activities and the slowing of vehicles during construction. However, congestion would not be alleviated under the No-Action Alternative, thereby continuing the energy consumption that results from congestion.

4.19 Construction and Operational Impacts

Construction work associated with the proposed project would include clearing and grubbing, grading, and preparing the roadway embankment; constructing drainageways and ditches and new drainage structures and bridges; finish grading; paving operations; and landscaping. Construction impacts are generally of short duration, and end shortly after project completion. These impacts typically include effects upon the natural environment, air quality, noise levels, land use access, traffic, and solid waste. The expected short-term construction impacts associated with the Build Alternatives are identified in the following paragraphs. Construction impacts would not occur under the No-Action Alternative.

Removing vegetation and topsoil during initial clearing, grubbing, and grading work presents the potential for erosion. Areas adjacent to the Mississippi River, Duck Creek, and wetlands traversed by the project have the greatest potential for adverse water quality impacts. Drainage ditch construction also provides a source of sedimentation to these waterways. Also, temporary air quality impacts may be caused by dust from the construction sites. Establishing aggregate crushing and washing operations or batch plants may also affect water and air quality. Bridge construction can have a temporary adverse effect on the Mississippi River's and Duck Creek's water quality due to sediment suspension. More information on construction and operational impacts to surface waters can be found in Section 4.5, *Water Quality Impacts*.

4.19.1 Natural Environment

Areas disturbed by construction would be restored to turf cover in accordance with the Illinois DOT's *Guidelines for Use of Landscape Items* as appropriate for the project location. A Special Provision entitled *Protection and Care of Trees and Shrubs that are to Remain* would be provided in the construction contract plans and specifications. Existing trees and shrubs that are to remain would be delineated on the plans as well as those to be removed.

4.19.2 Erosion and Sediment Control

According to the Illinois DOT's *Joint Design/Construction Procedure Memorandum on Erosion and Sediment Control*, proper erosion control methods would be employed to minimize erosion and sedimentation. Erosion control devices would be installed before the onset of construction work that could cause erosion. Temporary or permanent erosion control methods would include silt fences, retention basins, detention ponds, interceptor ditches, seeding and sodding, rip-rap on exposed banks, erosion mats, and mulching. Disturbance of streamside vegetation would be kept to a minimum. Disturbed areas would be seeded or stabilized upon completion of construction.

Drainage systems would be maintained, restored, or re-established in a manner that would not impound water. Construction staging areas would be selected in accordance with special provisions to ensure that the staging areas would not adversely affect water resources.

The Iowa DOT's *Construction Manual* requires contractors to reduce the amount of soil leaving the project site by using preventative measures such as silt fences, ditch checks, and other silt control devices. Stabilized crop seeding is identified as the most effective erosion control device and would be applied during the grading process. Under these guidelines, the contractor is required to submit an erosion control work plan. This plan should list the materials and equipment to be used; the location and timing of installation of silt fences, silt basins, and other temporary erosion control measures outlined on Standard Road Plans RL-9; and the schedule for placement of stabilizing crop seeding and fertilizing.

4.19.3 Air Quality

The primary potential construction impact on air quality would be fugitive dust (particulates) resulting from soil exposed to wind and traffic. The quantity of fugitive dust from the construction activities would vary depending on the construction location, the extent of activity, silt content, soil moisture, and wind speed. Construction activities would generate fugitive dust that may be a nuisance in nearby areas. However, the contribution of the proposed project to the total suspended particulates in the surrounding area would be small and of short duration.

During construction, blowing dust from areas cleared or excavated for access or construction purposes can be minimized in several ways. Water can be applied to unpaved road surfaces. The effectiveness of watering for fugitive dust control depends on the frequency of application. It is estimated that watering an entire area twice daily would reduce dust emissions by as much as 50 percent. These measures would be employed as needed during construction of the proposed improvements to control fugitive dust. Construction vehicles would also emit carbon monoxide, hydrocarbons, and nitrogen oxides. Ambient concentrations, however, would not be increased significantly by operation of construction vehicles and machinery.

4.19.4 Construction Noise

Construction noise would be controlled in accordance with article 107.35 of the Illinois DOT *Standard Specifications for Road and Bridge Construction* and Iowa DOT Policy 500.07. Construction noise would be minimized by the use of mufflers on construction equipment. Air compressors would meet federal noise level standards and would, if possible, be located away or shielded from residences and other sensitive noise receivers.

4.19.5 Traffic

A traffic management plan will be developed and implemented during the construction phase of the project to provide reliable access to residences, businesses, community facilities and services, and local roads. Two lanes of traffic will be maintained in each direction at all times, as this is an important component of this project and was noted in the purpose and need for the project. Local roads that would be intersected by either alternative would remain open to traffic with minor interruptions during construction. The use of reconstructed interchanges will also be interrupted during their renovation. These interruptions will be minimized to the extent possible. The respective states' DOT would coordinate construction activities, sequencing, and traffic management plans with fire,

police, and emergency rescue services to minimize delays and response times during the construction period.

4.19.6 Dust Control

The contractor shall be responsible for controlling the dust and air-borne dirt generated by construction activities. When circumstances warrant, a specific dust control plan shall be developed. The contractor and the respective states' DOTs shall meet to review the nature and extent of dust generating activities and cooperatively develop specific types of control techniques appropriate to that specific situation. Sample techniques that may warrant consideration include minimizing track out of soil onto nearby publicly traveled roads; reducing vehicle speed on unpaved surfaces; covering haul vehicles; and applying chemical dust suppressants or water to exposed surfaces, particularly to surfaces on which construction vehicles travel. Dust control measures as indicated in the Dust Control Plan, or as directed by the engineer, shall be readily available for use on the project site.

4.19.7 Solid Waste and Hazardous Waste

In accordance with state and federal regulations, the contractor would dispose of grass, shrubs, trees, old pavement, miscellaneous debris, and other solid wastes generated during construction.

Accidental spills of hazardous materials and wastes during construction or operation of the facility would require special response measures. These occurrences would be handled in accordance with local government response procedures. The first response is typically through the local fire departments and emergency service personnel to ensure public safety and to contain the substance to prevent harm to the environment. Depending on the nature and location of the spill, the Illinois EPA or Iowa DNR would be notified to provide additional instructions regarding cleanup.

4.20 Relationship of Local Short-Term Uses Versus Long-Term Productivity

All highway projects require the investment or commitment of some part of resources found in the existing environment. *Short-term* refers to the immediate consequences of the project; *long-term* relates to its direct or secondary effects on future generations.

Short-term consequences of the proposed build alternatives include:

- Relocation of residences and impacts on businesses.
- Removal of private properties from tax rolls, thereby reducing the property tax base.
- Conversion of floodplain and wetland to transportation use.
- Inconvenience to residents, business owners/suppliers, and employees during construction.

Some long-term benefits that may be realized from the recommended alternative include:

- An efficient transportation corridor through the heart of the Quad Cities that would provide better access for both daily commuting trips as well as special events trips.

- Improved motorist safety and convenience and reduced energy usage.
- Potential for new tax base in the project area by providing high-type transportation infrastructure to accommodate the movement of goods and services and orderly residential and commercial development.
- Enhanced employment growth for the region, including increased wages and salaries.
- Regional economic development, including growth in the industrial sector.
- Reduced current and forecasted traffic congestion on the road network in the I-74 corridor area.
- The identification and preservation of protected species habitat.

The I-74 Quad Cities corridor study is based on comprehensive transportation planning that considers the need for present and future traffic movement within the context of present and future land use development and the environment. Therefore, the local short-term impacts and use of resources by the proposed action is consistent with the maintenance and enhancement of long-term productivity.

4.21 Irreversible and Irretrievable Commitments of Resources

Constructing either of the proposed build alternatives for the I-74 Quad Cities corridor study would involve committing a range of natural, physical, human, and fiscal resources. Land acquired for constructing the proposed project is considered an irreversible commitment during the time period the land is used for highway purposes. Right-of-way requirements would convert land from residential, commercial, and natural environmental resource uses. Wildlife casualties may be expected, but due to the minimal amount of natural wildlife habitat in the project area, are not enough to appreciably reduce the likelihood of survival of any species. Adjacent land uses would be expected to experience some increase in noise levels; however, noise barriers would be constructed where justified to mitigate the effects of the increase in noise levels.

Considerable amounts of fossil fuel, labor, and highway construction materials, such as steel, cement, aggregate, and asphalt material, would be required. In addition, considerable labor and natural resources would be used in fabricating and preparing construction materials. Those resources generally are irretrievable, but their use would not have a substantial adverse effect on continued availability.

Construction of either of the proposed build alternatives would involve irretrievable federal, state, and local funding. Land converted from private to public uses would displace local tax revenues.

Committing resources is based on the concept that residents in the project area, region, and state would benefit by the improved capacity and safety that would result from the proposed project. The benefits such as improved access to businesses and community services, increased safety, and reduced travel times, and increased economic development are expected to outweigh the commitment of resources in the long term.

The selection of the No-Action Alternative would not require the commitment of resources traditionally committed through construction activities. It would, however, not solve any of the transportation needs discussed in the purpose and need for the project. Among these are the mobility needs the proposed build alternatives are intended to meet. With the lack of travel dependability within the corridor, the long queues of stationary vehicles and related congestion require the expenditure of additional fossil fuels. The stationary vehicles also reduce air quality when compared to a moving stream of vehicles.

4.22 Permits and Related Approvals

In addition to the water resource permits discussed in Section 4.7, *Water Resource Permits*, required by the CWA (Section 401 water quality certification, Section 402 NPDES, and Section 404 Dredge and Fill), the Rivers and Harbors Act Section 9 permit, and Illinois OWR-DNR water resource permit, the following permits and related approvals will be acquired for the build alternatives:

- **Section 106**. Archaeological and historical surveys were conducted as part of the project in compliance with Section 106 of the National Historic Preservation Act of 1966, as amended. Requirements for Section 106 of the National Historic Preservation Act will be fulfilled to the satisfaction of both the Iowa and Illinois SHPO; coordination with both states' state historic preservation officers would continue throughout the design process.
- **Utilities**. Coordination with utility providers would also be required during design and construction to coordinate the relocation and replacement of utilities crossing the right-of-way as well as those using the existing I-74 right-of-way by permit or agreement.

4.23 Summary

4.23.1 No-Action Alternative

The No-Action Alternative is defined as no new major construction along the I-74 corridor. Improvements implemented with this alternative would be limited to short-term restoration activities (maintenance improvements) needed to ensure continued bridge and roadway pavement integrity. The design of the existing roadway, including its location, geometric features, and current capacity constraints, would remain unchanged. Under this alternative, some minor operational improvements could be anticipated, such as deployment of a traffic management system for the I-74 Mississippi River bridges, and minor improvements at high volume ramp intersections.

Under the No-Action Alternative, it is assumed that committed and planned improvements (as detailed in Iowa DOT and Illinois DOT multiyear improvement programs, and in the 2025 RTP) would still be undertaken. The No-Action Alternative assumes that planned or committed highway improvements (Baseline Improvements) identified in Table 4-5, *Baseline Improvements for No-Action Alternative* (page 4-6), would be undertaken.

The No-Action Alternative would not address the project's purpose and need and would result in the following consequences:

- Capacity and operational deficiencies would expand and worsen creating a situation where traffic demand and service would not be met. Without improvements to capacity and operational issues, the congestion on I-74 would result in a break-down in traffic flow during peak periods and increasingly unreliable travel times for people, goods, and services.
- Roadway geometry would remain unchanged. The roadway design will not be updated to reflect current AASHTO safety and service guidelines. Existing geometry contributes to decreased safety and lower travel reliability. The No-Action Alternative would not contribute to increased safety, travel reliability or any other need that relies on an updated roadway geometry.
- Safety needs would not be addressed. As discussed in Section 1, *Purpose of and Need for Action*, the existing facility experiences a high crash rate, particularly in the downtown areas where the approaches to the bridges have undesirable horizontal and vertical curves. The No-Action Alternative would not address this need.
- Travel reliability would not be improved. The No-Action Alternative would not address the capacity and geometric needs that would allow for both better traffic flow during normal travel periods as well as improved traffic flow when emergency or maintenance activities occur on the bridges.
- The opportunity for I-74 to provide improved connections between the various multi-modal transportation services in the Quad Cities would not be facilitated. I-74 provides access to multiple interstate, airport, waterway, transit and bicycle/pedestrian facilities. Improved access to these facilities will become increasingly important to ensure efficient transport of goods and services as the Quad City economy grows.
- Without improvement, the condition of the physical infrastructure would worsen, resulting in increased maintenance activities and costs. Increases in maintenance activities also have the related impact of additional impedance to the flow of traffic when maintenance is necessary on the bridges.
- The project would not contribute to the economic development of the Quad Cities, a priority reported in the *2000 Comprehensive Economic Development Strategy*. This report indicated that while the Quad Cities is an attractive location for its proximity to a large population in a 300-mile radius, infrastructure improvements such as increasing the transportation capacity to accommodate new or an expanded business market and increasing bridge capacity are needed to maintain and strengthen the Quad Cities' economic conditions. Neither of these suggested improvements would be made if the facility remained as is.

If capacity is not increased, air quality would be affected by the escalation of pollutant emissions from vehicles idling as a result of traffic congestion.

4.23.2 Summary of Build Alternative Impacts

The impacts of the build alternatives discussed in this section are also summarized in Tables 4-30a and 4-30b, *Impact Summary Table – I-74 Mainline/Interchange Variations* and *Bettendorf Local Roadway Variations,* respectively, at the end of Section 4.

South Section

The build alternatives are common in the southern section of the project, and thus, their impacts are common also. No additional right-of-way will be required in this section. As such, the build alternatives will not displace any homes or businesses in this section.

Sixteen noise receivers will be affected by traffic noise. Noise barriers have been studied in this area for their ability to effectively reduce traffic noise and meet cost-effectiveness criteria. Three barriers were evaluated; however, none of them met the Illinois DOT criteria for cost-effectiveness.

Central Section

Two alignments were developed and investigated in detail as alternatives, E and F. Both of these alignments were combined with interchange variations in downtown Moline and Bettendorf. In Bettendorf, the alignment and interchange combinations were also examined alongside proposed improvements to the local roadway system.

As can been seen from Table 4-30a, *Impact Summary Table - I-74 Mainline/Interchange Variations*, at the end of Section 4, the impacts of the E and F alignments are similar for floodplains, streams/river crossings, threatened and endangered species, public use lands, and noise. Both alignments require a transverse crossing of the Mississippi River and its floodplain, impact Bill Glynn Memorial Park[12] and would impact the same noise receivers. Three noise barriers were studied in the Central Section. Two of these barriers, located in Iowa, were determined to not meet the cost-effectiveness criteria. A third barrier, located northwest of 12th Avenue in Illinois was determined to be feasible. Final locations of any noise abatement will depend on public input and final design considerations. While local roadway improvements do not introduce additional impacts to floodplains, streams and rivers, threatened and endangered species, and noise receivers, impacts to public use lands differ between the various local roadway options (see Table 4-30b, *Impact Summary Table – Bettendorf Local Roadway Variations*). Specifically, the U.S. 67 connector variations and Holmes Street Underpass Option in combination with Interchange Variation B1 would impact the Apostolic Assembly and McManus Park, respectively.

The E and F alignments primarily differ in right-of-way requirements, residential and business relocations, impacts to wetlands, and impacts to historic structures. Bettendorf local roadway variations do not impact wetlands or historic structures, but require additional right-of-way and impact additional residences and businesses.

The right-of-way requirements of the mainline/interchange alternatives range from 20.5 acres for Alignment E with Interchange Variations M1 and B2, to 23.4 acres for Alignment F with Interchange Variations M2 and B1. As Alignment F is located farthest from the existing facility, it generally has the greater right-of-way impacts. Among the interchange variations, M2 in Moline and B1 in Bettendorf generally have the greater impacts by the interchange type. Further, right-of-way impacts resulting from Bettendorf local roadway improvements range from 0.72 acres (90-degree configuration of U.S. 67 with Interchange Variation B2[13]

[12] Bill Glynn Memorial Park is not a park protected under Section 4(f) of the 1966 Transportation Act, as amended.

[13] Impacts shown for Interchange Variation B2 reflect 2 lanes in each direction along Grant Street. Providing 3 lanes in each direction would have impacts similar to Interchange Variation B1.

and the Kimberly Road Underpass Option) to 2.81 acres (diagonal configuration of U.S. 67 with Interchange Variation B1 and the Holmes Street Underpass Option).

The residential displacements caused by the mainline/interchange alternatives range from a low of six structures by Alignment E with M1 and B2 to a high of 12 structures by Alignment E with M2 and B1. The F Alignment interchange combinations range from 10 to 11 displacements. Additionally, residential displacements resulting from Bettendorf local roadway improvements range from zero to seven structures. for U.S. 67 with Interchange

Alignment E would have greater wetland impacts that Alignment F, with Alignment E impacting 2.1 acres of wetlands vs. 0.2 acre of impacts by Alignment F. The impacted wetlands in this section are located in the Mississippi River.

Both alignments and interchange variations would have the same impacts to historic structures in Bettendorf. As shown in Table 4-26, *Impacted 4(f) Properties* (page 4-55), Alignment F with Interchange Variation M1 in Moline would have the fewest impacts to historic structures, with a total of five impacted structures. Alignment E with Interchange Variation M2 would have the highest number of impacts to historic structures, with a total of seven impacts.

North Section

The build alternatives are common in the southern section of the project, and thus, their impacts are common also. No additional right-of-way will be required in this section. As such, the build alternatives will not displace any homes or businesses in this section.

Twenty noise receivers will be affected by traffic noise. Noise barriers have been studied in this area for their ability to effectively reduce traffic noise and meet cost-effectiveness criteria. Five barriers were evaluated; two barriers met the Iowa DOT criteria for cost effectiveness. Final locations of any noise abatement will depend on public input and final design considerations. The proposed improvements in the North Section will involve a transverse crossing of the floodplain of Duck Creek. As a crossing at this location currently exists and the proposed improvement will maintain the existing bridge opening size, no impact is expected to existing flood heights. Approximately 0.9 acres of Wetland #7 will be impacted by the project. Wetland #7 is associated with Duck Creek.

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
Downtown Moline			
Alignment E with M1	Moline Chamber of Commerce	622 19th Street	Access on 19th Street modified to right in-right out
	The Travel Business, Inc.	604 19th Street	Access on 19th Street modified to right in-right out
	Multi-family Residence	1916 6th Avenue	Access on 19th Street modified to right in-right out
	Single-family Residence	1918 6th Avenue	Access on 19th Street modified to right in-right out
Alignment E with M2	Moline Chamber of Commerce	622 19th Street	Access on 19th Street modified to right in-right out
	The Travel Business, Inc.	604 19th Street	Access on 19th Street modified to right in-right out
	Multi-family Residence	1916 6th Avenue	Access on 19th Street modified to right in-right out
	Single-family Residence	1918 6th Avenue	Access on 19th Street modified to right in-right out
	McLaughlin Precision Auto Care	1905 6th Avenue	Access to 6th Avenue eliminated
	McLaughlin Precision Auto Care	1909 6th Avenue	Access to 6th Avenue eliminated
	Single-family Residence	520 21st Street	Access to 6th Avenue eliminated
	Single-family Residence	516 21st Street	Access to 6th Avenue eliminated
	Single-family Residence	514 21st Street	Access to 6th Avenue eliminated
Alignment F with M1	Moline Chamber of Commerce	622 19th Street	Access on 19th Street modified to right in-right out

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
	The Travel Business, Inc.	604 19th Street	Access on 19th Street modified to right in-right out
	Multi-family Residence	1916 6th Avenue	Access on 19th Street modified to right in-right out
	Single-family Residence	1918 6th Avenue	Access on 19th Street modified to right in-right out
Alignment F with M2	Moline Chamber of Commerce	622 19th Street	Access on 19th Street modified to right in-right out
	The Travel Business, Inc.	604 19th Street	Access on 19th Street modified to right in-right out
	Multi-family Residence	1916 6th Avenue	Access on 19th Street modified to right in-right out
	Single-family Residence	1918 6th Avenue	Access on 19th Street modified to right in-right out
	McLaughlin Precision Auto Care	1905 6th Avenue	Access to 6th Avenue eliminated
	McLaughlin Precision Auto Care	1909 6th Avenue	Access to 6th Avenue eliminated.
	Single-family Residence	520 21st Street	Access to 6th Avenue eliminated
	Single-family Residence	516 21st Street	Access to 6th Avenue eliminated
	Single-family Residence	514 21st Street	Access to 5th Avenue eliminated
Downtown Bettendorf			
Alignment E with B1	Avenue Rental	1326 State Street	Improved access via new driveway to State Street.

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
	Multi-family Residence	125 S. 13th Street	Improved access via new driveway to State Street.
	Crescent Cleaners	1303 Grant Street	Access will be restricted as a result of driveway closure on Grant Street
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant St. to right in/right out only.
Alignment E with B2	Avenue Rental	1326 State St.	Improved access via new driveway to State Street.
	Multi-family Residence	125 S. 13th Street	Improved access via new driveway to State Street.
	Crescent Cleaners	1303 Grant Street	Access will be restricted as a result of driveway closure on Grant Street
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in/right out only.
	Handy Stop	1430 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in/right out only
	Single-family Residence	1444 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in/right out only
Alignment F with B1	Avenue Rental	1326 State St.	Improved access via new driveway to State Street.
	Multi-family Residence	125 S. 13th Street	Improved access via new driveway to State Street.
	Crescent Cleaners	1303 Grant Street	Access will be restricted as a result of driveway closure on Grant Street
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant St. to right in/right out only.

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
Alignment F with B2	Avenue Rental	1326 State Street	Improved access via new driveway to State Street.
	Multi-family Residence	125 S. 13th Street	Improved access via new driveway to State Street.
	Crescent Cleaners	1303 Grant Street	Access will be restricted as a result of driveway closure on Grant Street
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in/right out only
Downtown Bettendorf Local Rd			
B1 with Diagonal Connector	Village Inn	1210 State Street	Improved access as a result of conversion of State Street to two-way traffic
	Dollar General	1224 State Street	Improved access as a result of conversion of State Street to two-way traffic
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in-right out
	Water Park Car Wash	1215 Grant Street	Access restricted due to restriction of driveway access along Grant Street to right in-right out
	Single-family Residence	344 11th Street	Access restricted due to prohibiting 11th Street through movements at diagonal connector
	Tyco Simplex Grinnell	326 11th Street	Access restricted due to prohibiting 11th Street through movements at diagonal connector
B2 with Diagonal Connector	Village Inn	1210 State Street	Improved access as a result of conversion of State Street to two-way traffic
	Dollar General	1224 State Street	Improved access as a result of conversion of State Street to two-way traffic

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in-right out
	Water Park Car Wash	1215 Grant Street	Access restricted due to restriction of driveway access along Grant Street to right in-right out
	Single-family Residence	344 11th Street	Access restricted due to prohibiting 11th Street through movements at diagonal connector
	Tyco Simplex Grinnell	326 11th Street	Access restricted due to prohibiting 11th Street through movements at diagonal connector
B1 with 90 Degree Connector	Village Inn	1210 State Street	Improved access as a result of conversion of State Street to two-way traffic
	Dollar General	1224 State Street	Improved access as a result of conversion of State Street to two-way traffic
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in-right out
	Iowa Scaffold Company, Inc.	325 16th Street	Access restricted due to conversion of 16th Street to one way
	Trading Post, Gunsmith, Multi-family Residence	1546 State Street	Access restricted due to conversion of 16th Street to one way
	Multi-family Residence	326 16th Street	Access restricted due to conversion of 16th Street to one way
	Quad City Blind Factory, The Hair Society, Glass Treasure, Multi-family Residence	1604 State Street	Access restricted due to conversion of 16th Street to one way
	Beckman, Hamilton & Smith, Edward Jones Investment, Lon Wilken, D.C., CFA Public Adjusters, Flaherty's Happy Tyme, Co.	1123 Grant Street	Access restricted due to restriction of driveway access at 12th Street to right in-right out

TABLE 4-6
Property Access Impacts

Alternative	"Name"	Property	Access Impacts
B2 with 90 Degree Connector	Village Inn	1210 State Street	Improved access as a result of conversion of State Street to two-way traffic
	Dollar General	1224 State Street	Improved access as a result of conversion of State Street to two-way traffic
	US West	1437 Grant Street	Access restricted due to conversion of 15th Street at Grant Street to right in-right out
	Iowa Scaffold Company, Inc.	325 16th Street	Access restricted due to conversion of 16th Street to one way
	Trading Post, Gunsmith, Multi-family Residence	1546 State Street	Access restricted due to conversion of 16th Street to one way
	Multi-family Residence	326 16th Street	Access restricted due to conversion of 16th Street to one way
	Quad City Blind Factory, The Hair Society, Glass Treasure, Multi-family Residence	1604 State Street	Access restricted due to conversion of 16th Street to one way
	Beckman, Hamilton & Smith, Edward Jones Investment, Lon Wilken, D.C., CFA Public Adjusters, Flaherty's Happy Tyme, Co.	1123 Grant Street	Access restricted due to restriction of driveway access at 12th Street to right in-right out

TABLE 4-30a
Impact Summary Table – I-74 Mainline/Interchange Variations

Resource Issue	Unit of Measurement	South Section (23rd Avenue to 12th Avenue)	Central Section (12th Avenue to Lincoln Road)										North Section (Lincoln Road to 53rd Street)
			E Alignment					F Alignment					
			Moline			Bettendorf		Moline			Bettendorf[a]		
			Interchange Variation M1	Interchange Variation M2	Bridge	Interchange Variation B1	Interchange Variation B2	Interchange Variation M1	Interchange Variation M2	Bridge	Interchange Variation B1	Interchange Variation B2	
Land Conversions													
Net Increase in Highway ROW	Acres	0	10.6	13.1	--	10.1	9.9	11.0	13.1	--	10.3	9.9	0
Upland Converted to ROW	Acres	0	0	0	0	0	0	0	0	0	0	0	0
Farmland Converted to ROW	Acres	0	0	0	0	0	0	0	0	0	0	0	0
Real Estate													
Residential Structures Required	Number	0	2	7	--	4	4	5	7	--	4	4	0
Businesses Required	Number	0	4	7	--	12	12	3	6	--	11	11	0
Churches Required	Number	0	0	0	--	1	1	0	0	--	1	1	0
Environmental Issues													
Wetlands Impacted	Acres	0	0	0	2.1	0	0	0	0	0.17	0	0	0.92[b]
Floodplain Crossings	Number (type)	0	0	0	1 (transverse[c])	0	0	0	0	1 (transverse[c])	0	0	1[b] (transverse[c])
Stream/River Crossings	Number	0	0	0	1	0	0	0	0	1	0	0	1
Endangered Species	Yes/No	No	No	No	[d]	No	No	No	No	[d]	No	No	No
Historic Properties	Number	0	4	5	1	1	1	3	4	1	1	1	0
Parks	Number	0	0	0	0	1	1	0	0	0	1	1	0
Archaeological Sites	Number	0	0	0	0	0	0	0	0	0	0	0	0
Design Year Noise	Number of Receivers Impacted [e]	16 [f]	13	13	--	11	9	13	13	--	11	9	20[b]
Contaminated Sites	Number	0	8	10	0	12	11	8	10	0	13	12	0

[a] Additional Impacts associated with local roadway improvements in Bettendorf are shown in Table 4-30b.

[b] While no additional ROW is required in the North Section, the proposed work includes a transverse crossing of the floodplain of Duck Creek and its associated wetlands, of which 0.92 acres would be impacted. Additionally, approximately 20 noise receivers would be impacted.

[c] Transverse Floodplain crossing is a crossing of a floodplain at an angle of 30 to 90 degrees.

[d] Surveys for mussels will be completed during the preparation of the FEIS.

[e] Receivers are locations at which noise levels were monitored.

[f] While no additional ROW is required in the South Section, approximately 16 noise receivers would be impacted.

TABLE 4-30b
Impact Summary Table – Bettendorf Local Roadway Variations

Resource Issue	Unit of Measurement	Local Roads (within the Central Section)					
		U.S. 67 Transition Design Variations				Local Roadway Underpass Design Variations	
		90 Degree		Diagonal			
		Interchange Variation B1	Interchange Variation B2 [a]	Interchange Variation B1	Interchange Variation B2[a]	Holmes Street/Mississippi Boulevard[b]	Kimberly Road[c]
Land Conversions							
Net Increase in Highway ROW	Acres	1.24	.72	2.74	2.29	.07	0
Residential Converted to ROW	Acres	.13	.09	.18	.13	.42	0
Commercial Converted to ROW	Acres	1.01	.57	3.98	3.42	0	0
Real Estate							
Residential Structures Required	Number	4	0	7 [d]	5[d]	1	0
Businesses Required	Number	7	1	19	16	0	0
Churches Required	Number	0	0	0	0	0	0
Environmental Issues							
Wetlands Impacted	Acres	0	0	0	0	0	0
Floodplain Crossings	Number (type)	0	0	0	0	0	0
Stream/River Crossings	Number	0	0	0	0	0	0
Endangered Species	Yes/No	No	No	No	No	No	No
Historic Properties	Number	0	0	0	0	0	0
Parks	Number	0	0	0	0	1	0
Archaeological Sites	Number	0	0	0	0	0	0
Contaminated Sites	Number	7	9	10	12	0	0

[a] Impacts shown reflect 2 lanes in each direction along Grant Street. Providing 3 lanes in each direction would have impacts similar to Interchange Variation B1.
[b] The Holmes Street/Mississippi Boulevard Variation is only compatible with Interchange Variation B1. The impacts for this underpass variation are identical for Alignment Alternatives E and F.
[c] The Kimberly Road Underpass Variation is compatible with both Interchange Variations B1 and B2. The impacts for this underpass variation are identical for Alignment Alternatives E and F and Interchange Variations B1 and B2.
[d] Two structures are multi-family; one has two units and the other has eight units.